MAR 1952 51-4C

50X1-HUM

CLASSIFICATION CONFIDENTIAL

CENTRAL INTELLIGENCE AGENCY
INFORMATION FROM
FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT

CD NO.

COUNTRY	USSR
SUBJECT	Economic - Rail transportation, track signs
HOW PUBLISHED	Book
WHERE PUBLISHED	Moscow
DATE PUBLISHED	1951
LANGUAGE	Russian

DATE OF INFORMATION 1951

DATE DIST. 15 Jan 1954

NO. OF PAGES 12

SUPPLEMENT TO REPORT NO.

THIS IS UNEVALUATED INFORMATION

SOURCE Tekhnicheskiy Spravochnik Zheleznodorozhnika, Tom 5, Put' i Putevoye Khozyaystvo (Technical Handbook of Railroad Workers, Volume 5, Track and Roadbed Maintenance), Transzheldorizdat, pp 199-207

50X1-HUM
50X1-HUM

USSR RAILROAD TRACK SIGNS

[Figures referred to are appended]

Classification of Track Signs

In conformity with the Rules for Technical Operations of the Railroads of the USSR (Paragraphs 18, 56, 60, 63), the following track signs are used on the railroads:

1. Grade and curvature markers
2. Caution signs for engineers
3. System boundary markers
4. Grade crossing markers
5. Temporary indicators for snowplows.

Enumeration of Track Signs

The kilometer post (Figures 1 and 2) is erected for the cumulative count of kilometers from the point of origin of the railroad system throughout the main lines.

The markers of a kilometer on which reconstruction or repair work has been done (Figure 3) are placed on both kilometer stakes which border that kilometer, with the lateral side of the stake facing the kilometer repaired or reconstructed.

The upper line of the marker indicates the repaired track -- one or two. The second line briefly indicates the type of work done. The third line shows the year when the work was done.

CLASSIFICATION CONFIDENTIAL

STATE		NAVY		NSRB		DISTRIBUTION							
ARMY		AIR		FBI									

The lettering is black on a white background.

In double-track sections, one marker 1,130 millimeters high is erected if the first track has been repaired, and one 1,000 millimeters high if the second track has been repaired.

If both tracks have been repaired, two markers are erected.

In single-track sections the track is not indicated and the marker is 100 millimeters high.

On stakes made of rail the markers are placed on the web of the rail.

Picket posts (Figure 4) indicate the beginning of the picket and are placed between the kilometer posts for every 100 meters.

1. The wooden sign is painted white, and the top and bottom (according to the diagram) are painted black.

2. The size of the figures on wooden stakes is 170 x 75 millimeters, and of those on rail stakes 150 x 65 millimeters.

3. It is also permissible to use stone and cement picket posts the height of which does not exceed the head of the rail and with figures the same size as those on wooden signs.

4. On a stretch of track no smaller than the "okolotok" /the main unit of the track management which is subdivided into three or four work sections/ the signs must be of one of the materials referred to above.

Track signs are placed at the beginning and end of easement curves and also in the middle of sharp curves (Figure 5).

Boundary stakes (Figure 6) are erected at the frog; between two converging tracks they indicate the point beyond which it is forbidden to leave rolling stock. The boundary stakes on tracks must be located at the place where the distance between converging tracks equals not less than 3,810 millimeters.

Where the clearance diagram 2-S is in effect, and also in stations constructed according to the clearance diagram 2-V (motorcar sections), the boundary stakes are erected at the place where the distance between the adjoining converging tracks equals 4,100 millimeters.

In areas of transfer of freight from car to car, the boundary stake is placed at the point where the space between the axes of the tracks equals the width called for by the conditions of transfer, but not less than 3,600 millimeters.

In automatic-blocking territories the limit stakes are placed no closer than the insulated joints which control the receiving of trains on a given track. At switches laid in curved sections of track, these distances are increased according to the table of clearance spreads. On the faces of the sheared poles, the edges of which are aligned with the frog, are indicated the number of the corresponding station tracks.

The indication on grade marker stakes of the highest water level and the maximum height of the wave (Figure 7) is done in the following manner:

At a height of 750 millimeters above the edge of the subgrade a black ring is painted on the pole with an arrow on the side facing the track.

From the lower edge of the ring there are vertical lines up to the level of the maximum height of the wave and up to the highest water level.

These measurements are indicated in meters on the pole (below the arrow) with black paint.

In the absence of a grade marker, the data is painted on the kilometer post or some other marker.

The grade marker (Figure 8) is placed along the railroad track at points of contour breaks, indicating height or depth of the grade and its extent.

The rosettes around the bases of the track markers (Figure 9) are filled with brick chippings for the packing of the star and bordering and with fine limestone for the remainder of the space.

Warning signs for engineers are as follows:

1. The whistle post (Figure 10) is placed on the right side of the track at a distance of 500-1000 meters from the spot requiring warning of the approach of the train (tunnels, bridges, crossings, etc.). There is a black letter "G" on a white background, the crosshatched section is yellow, and the reverse side is black.

2. The precipitous area sign (Figure 11) is placed at a distance of 200 meters from the start of the precipitous spot.

3. The signs for starting and stopping pushing (Figure 12) are placed in areas determined by the joint decisions of the chiefs of traffic, locomotive management, and track sections.

The lower edge of the signboard must be 1,200 millimeters above the top of the outer rail head. In thick ballast sections this is provided for by increasing the length of the stakes.

4. The sign for spotting the engine at the track water tank in order to take on water (Figure 13) is placed in such a way as to be opposite the window of the engineer's cab when the neck of the water tank is opposite the water tank.

The stake is the same as in Figure 10. Instead of the letter "G" there is the letter "K" -- black on a white background, the crosshatched part black, and the reverse side black.

5. The sign 'Shut Off Blower"(Figure 14) is placed on tracks which pass under overpasses and footbridges, at a distance of 30 meters from both sides. The lower edge of the plate must be 1,600 millimeters above the level of the outer rail head.

6. The sign 'Close the Ashpit' (Figure 15) is placed before metal bridges with wooden girders when the length of the bridge is more than 100 meters, and in front of wooden bridges more than 10 meters long -- at a distance of 30 meters from the bridge on both sides.

The construction of the signboard is the same as in the sign 'Start of Pushing."

7. The signs for the switching on and off of the current (Figure 15) are placed on the right side of the track at a distance of not less than 50 meters for locomotive traction sections and not less than 200 meters for motor-car traction sections. The reflecting elements are white on blue background.

8. Notification plates in front of warning disks and entrance semaphores (Figure 16) are placed in the following manner. In straight sections of track the face of the plate is placed at an angle of 60 degrees toward the axis of the track. In curved sections of track the angle between the face of the plate and center of the track is determined at the spot according to the conditions of best visibility. The stripes are black on a white background. The reverse side of the signboard and the stake are painted gray.

9. Temporary signs concerning the raising, preparation for lowering, and lowering of the pantograph (Figure 17) in electrified sections of track are erected on the right side of the track at the following distances: the sign "Prepare to Lower the Pantograph" -- not less than 100 meters before the sign "Lower the Pantograph"; the sign "Lower the Pantograph" not less than 200 meters before the end of the electrified area; the sign "Raise the Pantograph"-- not less than 50 meters from the end of the wired section for roads with electric locomotive traction and not less than 200 meters for roads with motorcar traction. The reflecting elements are white on a blue background. According to local conditions, depending on the layout of the track and permissible speeds of traffic for the distance, higher indications may be substituted.

Portable track signals (Figure 18) are used for the temporary guarding of some particular section of track.

System boundary markers (Figure 19) are placed on the kilometer posts. If the system boundary does not coincide with the kilometer sign, a sign is erected on a special pole at a height of 2.25 meters above the ground -- the same type as the wooden kilometer post.

Signs denoting limits of power supply sections and divisions of the contact network (Figure 19) are as follows:

1. If the limits of power supply sections and contact network divisions coincide, then only one sign for the boundary of the power supply section is erected on the boundary pole.

2. The sign is placed on the kilometer post.

3. If the boundaries do not coincide with the kilometer signs, the sign is erected on a special pole 2.25 meters above the ground.

The signs indicating the station limit (according to Paragraph 250 of the Rules for Technical Operations) and the guide places for oncoming trains following incorrect tracks (according to paragraph 304, Rules for Technical Operations) (Figure 20) are erected on double-track sections on the same side of the track as the inbound semaphore (light signal) at a distance of 50 meters from the outgoing semaphore (light signal), or at a distance of 50 meters beyond the last outgoing switch in those instances where the switch is located before the semaphore.

The inscription "Station Limit" is black on a white background, on both sides (the station side and away from the station). The inscription "Guide" ("Provodnik") is black on a white background, facing away from the station. The plates are placed perpendicular to the track.

The boundary signs of railroad rights of way (Figure 21) in areas adjoining other land holdings are set up on a mound and surrounded by a ditch. The use of stone and concrete signs is permitted, but they must be the same height above the ground.

The sign is painted gray and the top and bottom black as shown in the diagram.

The signs "Watch for Trains" (Figures 22 and 23) are caution signs for automotive traffic and are placed at the approaches of the highways, 20 meters from the outside rail on the right side facing the approaching highway traffic.

The sign is painted white on both sides.

The structure of the plate is the same as the sign "Start of Pushing".

On plate No 1 (Figure 22) the inscription is in the local language.

The width of the boards on which only the Russian language appears is 200 millimeters.

Warning signs for snow plows (Figure 24), used to warn of obstacles ahead (Paragraph 63, Rules for Technical Operations), are as follows:

The sign "Raise the Blade, Close the Wings" (Figure 24, a) is placed on the right side of the track in the direction of travel at a distance of 30 meters on either side of the obstacle. When there are two close obstacles, between which the snowplow cannot operate, two signs are placed on the pole, one under the other.

The sign "Lower the Blade, Open the Wings" (Figure 24, b) is erected on the right side of the track in the direction of travel at a distance of 10 meters beyond either side of the obstacle.

The signs are painted with black and white stripes.

Production of Track Signs

1. The stakes for the track signs are prepared from logs with a diameter of 150-170 millimeters, pointed and finished at the top. The end of the pole which is buried in the ground is coated with a preservative or is charred.

For temporary signs for engineers, wooden poles are used with a diameter of 60 millimeters and a length of 2 meters. A shoe made of sheet iron 2 millimeters thick is fitted on the lower extremity of the pole. The upper end of the pole is finished as indicated in Figure 18.

For kilometer, picket, slope-indicating signs, and curve indications in unforested localities, the erection of rail stakes is permitted.

All the necessary dimensions for the making of the signs are indicated in the figures.

2. Signboards mounted on track sign poles (kilometers, slope indications, indications of curves, warnings for the switching on and off of the current, indications of the limits of power supply regions and contact network divisions, and signs concerning the raising and lowering of the pantograph) are made out of steel 2-3 millimeters thick.

The whistle and water stop signs may be constructed of wood, or of steel 2-3 millimeters thick.

Existing signs made out of wood may be used depending on their condition until replaced.

Tables of signs for the start and finish of pushing, closing of the ashpit, or the siphon, station limits, and crossing signs may be made out of dry boards 35 millimeters thick.

Tables with a width of 300-400 millimeters made of two boards are produced: (a) on crosspieces and sheathed with light sheet iron on the face side; (b) on crosspieces, with the edges in the groove, and with a carefully puttied surface.

3. The track signs are given two coats of oil paint.

The tables are painted white on the face side and black on the reverse side, with the exception of the precipitous area sign and the crossing sign which are painted white on both sides.

On the sign "Whistle," the lower half of the table according to the diagram is painted yellow, and the sign indicating the engine stop for taking on water is painted black.

The tables of signs indicating engine stops by water tanks and temporary indications for engineers are painted on the face side in accordance with the diagram (Figure 17) and black on the reverse side.

4. The signs are produced at the work shops of the track sections and are transported to their location on hand cars or small track cars.

The signs are kept in the warehouses of the track foreman and section gangs.

Places for the Erection of the Track Signs

The signs of the alignment and the profile of the track are placed on the right side of the track, and warning signs for engineers and temporary indications are erected on the right side of the respective track facing traffic.

In sections equipped with cross suspensions of the contact system, the signs are erected on the lower fixing cable or cross bar on the right facing the traffic, at a spacing of 1.80 meters from the axis of the track to the axis of the table, if it is impossible to place the temporary signs for engineers and the warning signs concerning switching on and off of the current on stakes or the masts of the contact system.

On tracks with two-way traffic the signs are erected separately for each direction of traffic. These signs must be erected also for instances of incorrect direction of traffic. The placement in double-tracked sections is on the left side facing traffic.

According to Paragraph 61 of the Rules for Technical Operations, all track signs which are set on poles higher than the level of the rail head are placed not closer than 2 meters from the outside rail, and signs not above the level of the top of the rail head (pickets, and signs of the start and end of a curve) may be erected not closer than 1.35 meters from the outside rail. In curved sections of track these spacings may be increased depending on the radius of the curve according to the increase of the clearance spacings from the axis of the outer track in the curves.

Portable Track Signals and Their Production

In agreement with the Rules for Technical Operations (Paragraphs 113, 271, 273, and 274) and instructions for signaling, the following portable track signals and signs are erected (Figure 18):

1. Stop Signal -- a red rectangular plate with a border of black and white stripes.

2. Signal to Reduce Speed -- a yellow square plate with the reverse side painted green to indicate the end of the safety section. It is bordered the same as the stop signal.

3. The "Whistle" sign has the same appearance as the stationary "Whistle" sign.

Portable track signs are produced from light sheet iron weighing (the sheet) 4.5 kilograms.

The dimensions must correspond to the diagrams. For strengthening, a wire with a diameter of 4-5 millimeters is wound from the edge of the iron plate or an iron band 12 millimeters long and 1.5-2 millimeters thick is welded to the borders of the plate.

The production of signboards of plywood is permitted in frames made of planks 100 x 10 millimeters.

The signboards are mounted on wooden poles with a diameter of 60 millimeters and 2 to 3 meters long. On the lower end of the pole is fitted a shoe made of sheet iron one to two millimeters thick. The top end of the pole is finished according to the diagram in Figure 18.

To strengthen the plate, a collar and bushing are inserted on the stake.

The plates of portable signals are covered twice with an oil paint in the appropriate colors.

[Appended figures follow.]

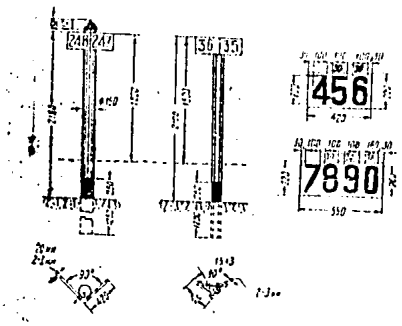

FIGURE 1. KILOMETER POST

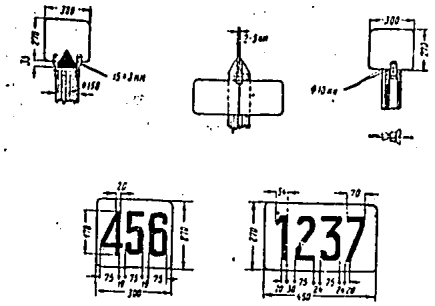

FIGURE 2. KILOMETER POST SIGNBOARD

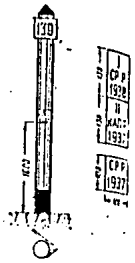

FIGURE 3. MARKER INDICATING RECONSTRUCTED OR REPAIRED KILOMETER

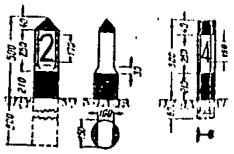

FIGURE 4. PICKET POST

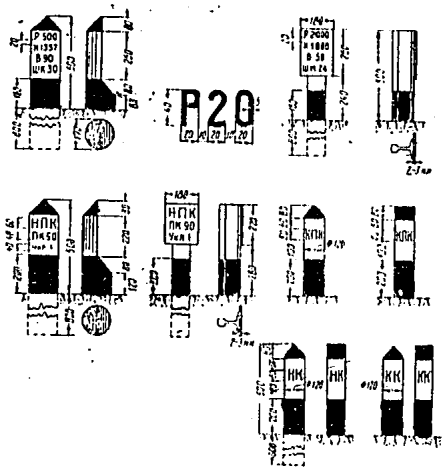

FIGURE 5. BEGINNING AND END OF CURVE SIGNS: Р= RADIUS OF CURVE IN METERS, К= LENGTH OF SIMPLE CURVE IN METERS, В= SUPERELEVATION OF OUTER RAIL IN MILLIMETERS; ШК= GAUGE WIDENING IN MILLIMETERS; ПК= LENGTH OF EASEMENT CURVE; УКЛ = RATIO OF ELEVATION OF OUTER RAIL TO LENGTH OF CURVE IN THOUSANDTHS

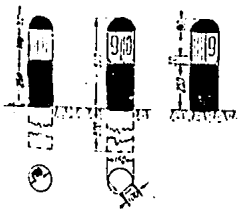

FIGURE 6. BOUNDARY STAKES

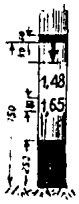

FIGURE 7. INDICATION ON GRADE MARKER STAKES OF HEIGHT OF WATER LEVEL AND MAXIMUM HEIGHT OF WAVE

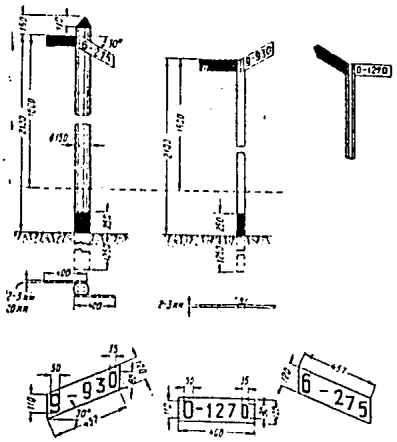

FIGURE 8. GRADE MARKER

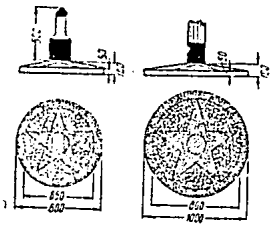

FIGURE 9. MARKER FOUNDATION ROSETTE

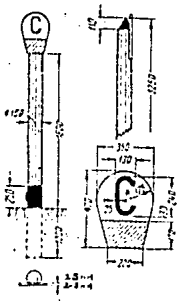

FIGURE 10. WHISTLE POST

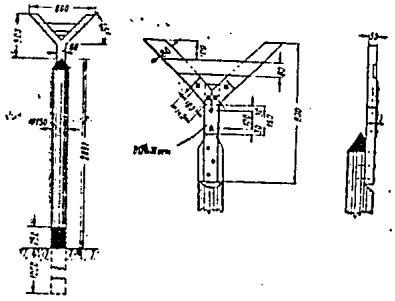

FIGURE 11. PRECIPITOUS AREA MARKER

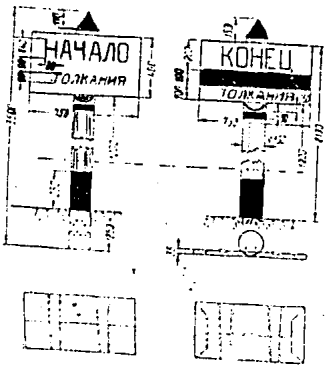

FIGURE 12. START AND STOP OF PUSHING MARKER

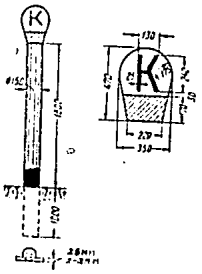

FIGURE 13. MARKER FOR SPOTTING ENGINE AT WATER TANK FOR TAKING ON WATER

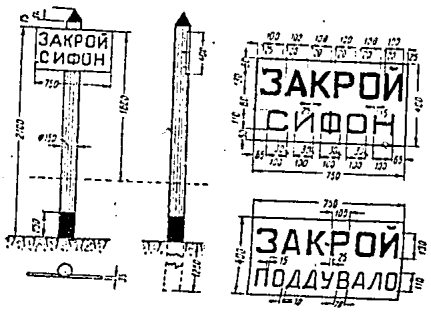

FIGURE 14. MARKER FOR CLOSING BLOWER AND ASHPIT

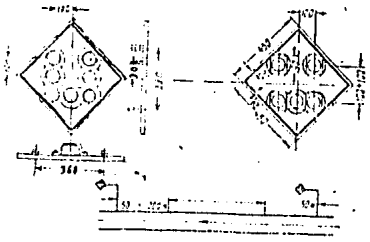

FIGURE 15. MARKER FOR SWITCHING CURRENT OFF AND ON

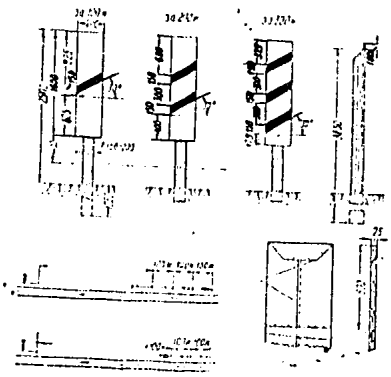

FIGURE 16. NOTIFICATION PLATES PRECEDING WARNING DISCS AND SEMAPHORES

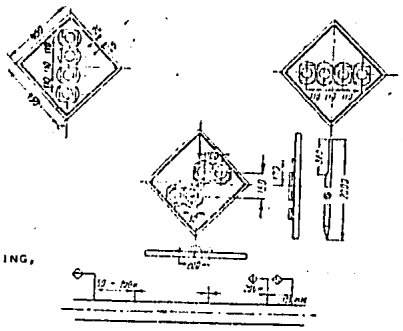

FIGURE 17. TEMPORARY SIGNS FOR RAISING, PREPARING TO LOWER, AND LOWERING PANTOGRAPH

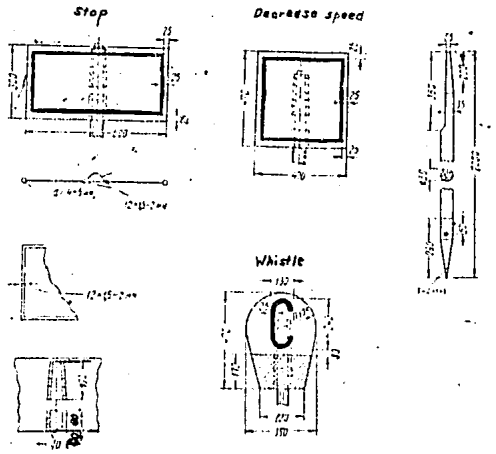

FIGURE 18. PORTABLE TRACK SIGNS

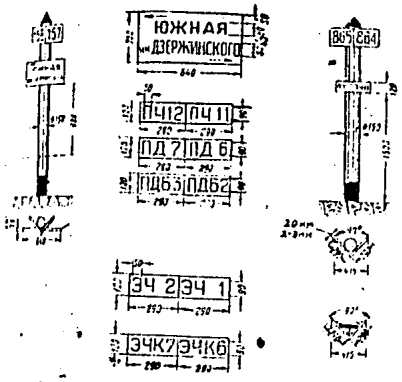

FIGURE 19. SYSTEM BOUNDARY MARKER, SECTION MARKER, POWER SUPPLY LIMIT MARKER, CONTACT NET LIMIT MARKER

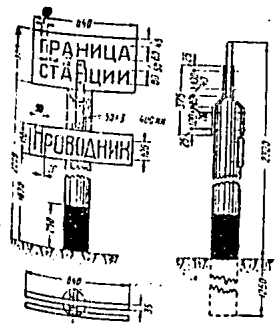

FIGURE 20. STATION LIMIT MARKER AND GUIDE MARKER

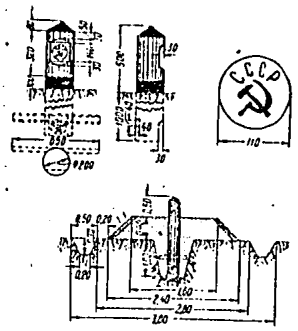

FIGURE 21. RAILROAD RIGHT OF WAY MARKER

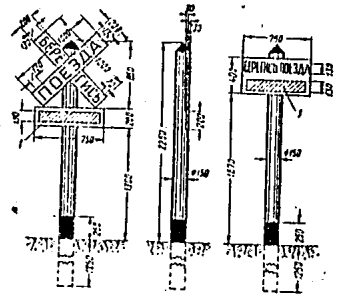

FIGURE 22. TRAIN CROSSING MARKER

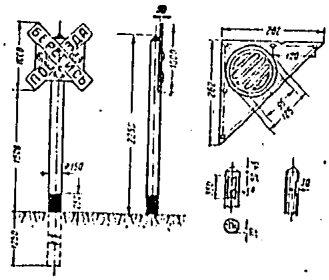

FIGURE 23. TRAIN CROSSING MARKER WITH REFLECTORS FOR AUTOMOBILE GRADE CROSSINGS

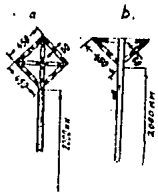

FIGURE 24. TRACK MARKER FOR SNOWPLOW

- E N D -